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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,801	01/27/2004	Ronald Duane McCallister	2298-030	3261

7590 05/16/2005

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EXAMINER

BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,801

Applicant(s)

MCCALLISTER, RONALD DUANE

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-41 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/10/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Goodson et al U.S. Patent No 5,745,597.

As per claim 1, Goodson et al teaches a method of managing distortion in digital communications transmitter in which at least a portion said distortion is introduced by analog-transmitter components, said method comprising: obtaining a forward-data stream configured to convey digital information (see fig.1 element 101 and col.2, lines 18-37); an equalizer is the same as the claimed (training a linear predistorter) (see fig.1 element 117 and col.3, lines 15-17 and col.6, lines 27-28) to compensate for linear distortion introduced by said analog-transmitter components; and an equalizer is the same as the claimed (training a nonlinear predistorter) (see fig.1 element 135 and col.3, lines 20-25 and col.6, lines 28-30) compensate for nonlinear distortion introduced by said analog-transmitter components.

As per claim 2, Goodson et al inherently includes a method said linear predistorter comprises a first equalizer, and said nonlinear predistorter comprises a second equalizer; said linear-predistorter-training activity comprises operating

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said first equalizer in an adaptive mode to compensate for said linear distortion; and said nonlinear-predistorter-training activity comprises operating said second equalizer in an adaptive mode to compensate for said nonlinear distortion.

As per claim 3, Goodson et al inherently includes said linear-predistorter-training activity operates said first equalizer in a non-adaptive mode when said second equalizer is operated in said adaptive mode; and said nonlinear-predistorter-training activity operates said second equalizer in a non-adaptive mode when said first equalizer is operated in said adaptive mode.

As per claim 4, Goodson et al inherently includes wherein said nonlinear-predistorter-training activity occurs after said linear-predistorter-training activity.

As per claim 5 Goodson et al inherently includes wherein said linear-predistorter-training activity comprises determining filter coefficients for an equalizer which filters said forward-data stream.

Allowable Subject Matter

3. Claims 6-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. Claims 21-41 are allowed over the prior art of record..
5. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to anticipate or render obvious the following recited features: down-converting a feedback signal obtained from said analog-transmitter components using a digital-sub-harmonic- sampling down-converter to generate a return-data stream; and processing said return-data-

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stream to generate said filter coefficients as recited in claim 6. a feedback section having an input adapted to receive an RF-analog signal from said analog-transmitter components and an output coupled to said nonlinear pre-distorter and to said linear pre-distorter as recited in claim 21. Generating a return-data stream from said RF-analog signal; implementing a first-estimation-and-convergence algorithm to train a linear predistorter to compensate for linear distortion introduced by said analog-transmitter components; and after training said linear predistorter, applying a second-estimation-and-convergence algorithm to train a non-linear predistorter to compensate for nonlinear distortion introduced by said analog-transmitter components as recited in claim 34.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Agazzi et al U.S. Patent No 5,745,597 teaches a method of nonlinear equalization.

Sesay et al US 20030078074 A1 teaches an optical fiber.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021.

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The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

A handwritten signature in black ink, appearing to be 'Emmanuel Bayard', written over the printed name and title.

5/12/05